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THE SCIENTIFIC WORK OF THE HEALTH ORGANIZATION OF THE LEAGUE OF NATIONS

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A remarkable feature of the Versailles Treaty was that it contained a paragraph providing that the members of the League agreed to, "take steps in matters of international concern for the prevention and control of disease."

Thus, for the first time in history, those who drew up an important political treaty gave some thought to the health of the nations.

Shortly afterwards, the new international Health Organization was established and began to function. Today it is composed of:

1. A Health Committee of twelve members, one of whom has always been an American, which now meets four times a year.
2. An Advisory Council, consisting of the permanent committee of the Office International d'Hygiène Publique in Paris, which convenes annually an international health conference to consider the League's health work.
3. The Health Section, the executive organ of the Health Organization, which is an integral part of the Secretariat of the League.

The funds for the Health Organization's work are derived mainly from the League itself but ever since 1922 the Rockefeller Foundation has made generous grants and the Milbank Memorial Fund has supported certain activities.

Among the many and widely diversified activities of the Health Organization during the sixteen years of its existence I shall give you an account of some of the fields in which it has made use of scientific workers and institutions and has consequently contributed to scientific progress.

It must be remembered that the Organization confines itself to work of a practical nature and does not undertake any purely speculative research. It does not itself deal with practical health problems unless they are international in character, by reason either of the nature and extent of the investigations required or of the measures necessary to control epidemics.

The question has been raised as to whether the League should itself create a big central laboratory for research into the many different problems requiring solution but this idea has been rejected, as it has been found much more profitable to coordinate the work of national institutes and experts who are particularly interested in the problems to be investigated.

International Cooperation in the Campaign Against Epidemic Diseases.

One of the main activities of such a body as the Health Organization must obviously be the campaign against those infectious diseases which constitute essentially international problems.

The first condition for a campaign against infectious disease is the creation of a service of epidemiological intelligence and public health statistics. The League has created two such services, one with its headquarters at Geneva, the other at Singapore. At Geneva current information is collected from all the Government Health Services on the prevalence and movement of infectious diseases and is then classified, analyzed, and published in weekly, bi-monthly and yearly bulletins, as well as in multigraphed sheets appearing several times a week. These are at the disposal of all the Health Administrations in the world. While medico-statistical material of consider-

able value has been compiled in this way, it is of particular importance that the Bureau in Geneva should be well informed of the conditions under which these data have been compiled. Were such information lacking, the value of the figures would be open to doubt. One difficulty has always been to establish uniform figures, data which may be comparable, for instance, on the questions of still birth, population estimates and the notification of joint causes of death. In order to achieve uniformity and comparability in connection with this information, it has been necessary to create several commissions of statistical experts, who have considered these questions and made definite proposals to the Health Administrations.

The first successes achieved by the League in the collection and transmission of epidemiological intelligence were due to the foresight, wisdom and initiative of Edgar Sydenstricker. We are also indebted to Dr. Boudreau for very valuable work in this field. At present the decennial revision of the International List of Causes of Death is under consideration, and the French Government, which will convene the next conference, has entrusted its preparation to a joint committee set up by the International Institute of Statistics and the Health Organization of the League of Nations. Dr. Haven Emerson of Columbia University is the American member of this committee.

In Singapore the League of Nations Bureau now collects information from all important ports in the Far East and distributes it again to all ports and ships by ten wireless stations and by cable.

For the study of infectious and other diseases it has been found necessary to constitute a series of Expert Commissions, and this method of work has proved to be very satisfactory. Meetings of scientists at congresses often prove very helpful through personal contacts and the many new suggestions to which they give rise. On the other hand, tangible results are often scanty because the necessary complete cooperation on definite points cannot always be maintained. The position is more favorable in the case of the Commissions created and maintained by the League. The

intention is to elucidate a difficult question and treat it in such a way that a concrete proposal may result. If at the first meeting the information available is not sufficient, it may be necessary to carry out thorough investigations either in the field or the laboratory in accordance with a definite plan. On the termination of these investigations the participants will often be in a position to make definite practical proposals on which the Health Administrations can base their work. A long series of such Expert Commissions has been constituted dealing with practically all important infectious diseases.

Tuberculosis.

I need not weary you by entering into the work of all these different Commissions but only mention by way of illustration some of the more important. Take, for instance, *tuberculosis.* A thorough investigation into the epidemiology of tuberculosis was made in the three Scandinavian countries in 1925, showing the very different manner in which tuberculosis has developed in these countries. In Denmark, for instance, tuberculosis has been spreading for a hundred years and this is probably one of the reasons why it is now decreasing rapidly. Practically the whole population in all parts of the country have been infected and consequently immunized; whereas in Norway and Sweden the spread to the more remote parts has taken place more recently, and the tuberculosis rate has shown a tendency to rise up to a few decades ago.

Another question is that of tuberculin. On the proposal of Calmette and Potter a standard tuberculin was prepared and suggestions put forward for the best way of carrying out the tuberculin test. When the well-known method of vaccination against tuberculosis was recommended by Calmette and Guérin, it encountered, as will be remembered, severe criticism, even before the sad Lübeck affair. Doubt was raised both concerning the immunizing power and the innocuousness of the vaccine. A Conference of leading experts in tuberculosis was convened at the Pasteur Institute under the auspices of the

League, and after very thorough discussion a report was adopted stating that B.C.G. correctly prepared, could be used without any risk.

Tubercle Bacilli in the Blood.

Some years ago a considerable controversy was raised in the scientific world because the Austrian tuberculosis expert, Löwenstein, thought he had demonstrated that virulent tubercle bacilli could be found in the circulating blood not only of patients with tuberculosis but also in patients suffering from many other diseases, such as dementia praecox, mental diseases and rheumatic affections. This thesis was denied by several competent workers, but others supported Löwenstein's idea. This gave rise to considerable confusion in the scientific world, since Löwenstein's thesis, if correct, constituted a total revolution in our conceptions of tuberculosis and its significance for the etiology of some of our most common diseases. It would, for instance, also revolutionize our present use of blood transfusion, because we could not be indifferent to the fact that by transmitting blood from an individual apparently not suffering from tuberculosis to another, there would be a risk of transferring tuberculosis infection. As this matter had not only a scientific but a practical significance, our Health Organization was approached with a view to a really authoritative investigation of the problem. Four competent laboratories were chosen, that of Stanley Griffith in Cambridge, of Calmette in the Pasteur Institute in Paris, of Kolle in Frankfort and of the Serum Institute in Copenhagen, department of K. A. Jensen. Blood samples from a series of selected patients were taken, half of which were examined in the country in question, and the other half sent to the laboratory of Löwenstein. Finally this research work was concluded and the results discussed, and I may say that not one of these four investigators could confirm Löwenstein's thesis. As a result of this investigation the general impression of specialists in this field is that the whole question has fortunately been settled.

Though the problem of stamping out tuberculosis is far from solution, yet this disease is decreasing rapidly in many countries. Such is not the case with a disease such as syphilis, which should be completely eradicated with the help of modern treatment.

Syphilis.

The important Bordet-Wassermann test has played a very great role in the fight against syphilis. In view of the great significance of this test, and the fact that it is used by so many workers in different countries, considerable modifications have been suggested, concerning the "complement fixation" test as well as the "precipitation" tests. Some uncertainty was felt as to which of these tests was preferable. In spite of the extensive literature on the subject, it was impossible from these publications alone to form an objective judgment on the relation between the different tests as every author of a test strongly held that his was superior to the others. After some preliminary investigation, it was clear that the only useful method for comparison would be to invite these authors to a laboratory conference where they could perform their own tests on identical samples of blood and compare their results. Two such laboratory conferences were held in the State Serum Institute in Copenhagen in 1923 and 1928 and the results were exceedingly enlightening.

Only by such a conclusive experiment could a really objective comparison between the tests be made, and only after having been faced with these indisputable results would the authors eventually concede the inferiority of their own methods. The value of these conferences was so great that the South American States asked the League to convene a third in Montevideo in 1930. The result of these conferences was that the "precipitation" tests of Kahn and others as a whole were found to be superior to the "complement fixation" methods, but it was shown that both should be used together. Since that time the authors have improved the "complement fixation" test with the

result that they now have an equivalent value. At present, there is a general desire to have a new laboratory conference in order to obtain exact information on the present state of these important tests.

I should like to emphasize how useful such laboratory conferences may be. They not only give an opportunity for reliable comparisons between the methods tested, but the many exhaustive discussions between the experts have often induced them to return to their respective countries anxious to overcome the deficiencies of their methods.

The best method of treating syphilis was a problem of a different character. As the Salvarsan treatment is capable of rendering a syphilitic non-infectious in a very short time, we thus had the means in our hands of completely guarding against syphilitic infection if this treatment were properly used. It was found from an inquiry in different ports that doctors responsible for the treatment of syphilis had in many cases abandoned the classical methods and that the treatment of this disease was not always carried out efficiently. It was therefore proposed that leading syphilologists from the United States, Germany, France, England, and Denmark should be consulted on this subject. They unanimously agreed with enthusiasm that an international study should be made to determine the best methods of treatment, emphasizing that the doctors of the whole world should have substantial proof of the best way of carrying out the treatment. Excellent material was then collected in the form of complete records of over twenty-five thousand cases of syphilis treated in selected clinics of the above-mentioned countries. After completing the considerable work involved in studying this material, the Commission of Experts in October, 1935, was able to present definite proposals for the best methods of treatment, proposals based on the exhaustive study of this large amount of material from these five countries. Such a documentation could obviously only have been procured by an inquiry undertaken by the Health Organization.

The Salvarsan preparations themselves have been the object of international standardization, as our Commission on Standards has laid down rules for the proper testing of these important drugs. Thus the Health Committee's program as regards syphilis was rounded out by a general survey of the disease, covering its diagnosis and treatment.

Rabies.

Among the many institutions throughout the world dealing with the prevention of hydrophobia, there is still no agreement about the best way of preparing rabies cords for inoculation. In 1927 the Health Organization began an investigation into the results obtained by the various methods to compare their prophylactic efficacy, the frequency of accidents due to their application, their cost and the possibility of giving treatment in places some distance from anti-rabies centers. Some hundred institutes replied to the questionnaire of the Health Organization.

An International Conference was held at the Pasteur Institute at Paris in 1927, at which sixty representatives of Government and anti-rabies institutes were present. A special commission discussed the nature of rabies virus, important contributions having recently been made to existing knowledge on the subject. Another commission dealt with public health regulations and orders for international veterinary quarantine and recommended modifications corresponding to the present stage of scientific knowledge.

The report of the Conference, which contains a critical analysis of the information received and the conclusions reached, is a unique record of all that is so far known about rabies.

One of the results of this Conference was that the majority of the anti-rabies institutes have adopted a uniform method of compiling their statistics which aids in the comparison of results.

The Health Organization publishes annually an analysis of the annual statistics of anti-rabies institutions in its

Quarterly Bulletin, where most of its Scientific Publications are to be found.

Leishmaniasis.

More recently the Health Organization instituted an inquiry into Leishmaniasis the presence of which in the Mediterranean countries has aroused a great deal of interest, and the inquiry already made has proved that this disease is much more common than had been appreciated.

Leprosy.

The Health Organization has a Commission on Leprosy which has published detailed reports on the treatment and prevention of this disease. An international center for research in leprosy placed at the disposal of the League by the Brazilian Government was inaugurated at Rio de Janeiro in April, 1934.

Rural Hygiene.

As a result of an important European Conference on Rural Hygiene, a series of problems was raised. I may just mention the question of flies, as this could not be omitted from a discussion of the problem of rural hygiene. It was evident that despite considerable work in this field, our information concerning the prevention of flies was not sufficiently exhaustive, and it was therefore left in the hands of certain competent entomologists. A compatriot of mine, Professor Mathias Thomsen, has made an interesting study of the habits of the house fly and has submitted practical proposals for combating it which have given very good results in my own country. An interesting film has been made by him on this question. As the fly problem obviously varies in different countries, a Conference of Entomologists met a year ago in London and is now undertaking a study of the house fly in different parts of Europe.

Typhoid Fever.

In the case of typhoid fever the diagnosis is of course very important, one of the main tests being the Widal

reaction. This is carried out in such a variety of ways in different laboratories and the results are indicated in such a different manner that it is not possible to compare what is, for instance, a Widal test 1 :100 in one country with the corresponding indication in another. For this reason comparative tests have been performed in a series of countries and a proposal has been made by which it is hoped to obtain more uniform results. My remarks concerning the serological test of the typhoid bacillus also apply to *B. abortus* Bang and other microbes.

The Salmonella Group.

We know that the whole Salmonella group is becoming more and more complicated and that differentiation can only be performed with well known strains of these bacteria and well defined corresponding sera. As this question is of great epidemiological importance, the Health Organization is considering the creation of international centers for this purpose.

Physical Education.

Another problem of great current importance is that of physical education. This question has aroused considerable interest, which I am sorry to say is due to a certain extent to its military significance. The heavy physical strain now laid on the younger generation is the concern of many Health Administrations.

A rapidly growing interest in athletic sports and games was apparent all over the world even before the great war, and in many countries support was given to such activities out of public funds, perhaps because it was hoped to obtain better human material for military service, or, more generally, because athletics were believed to improve the health of the people. Since the war, enthusiasm for athletics has grown to an extraordinary degree. The man who runs 100 meters in x seconds or throws a discus y meters is revered as a national hero. One consequence of this popular interest is that the sums spent upon athletics and sports have grown enormously. Public opinion de-

mands that clubs and organizations concerned shall be supported out of public funds. Very few people or authorities, indeed, venture to raise the question whether the money voted for athletics is well spent or the contrary. The Health Organization of the League of Nations, aware of the importance of the issues this problem involved, appointed a number of experts who met in Copenhagen in January 1931. These included several physiologists who had contributed to the study of muscular work (Durig, Liljestrand, Lindhard, Loewy). The conference agreed to ask the Health Organization to initiate and supervise a study of problems connected with the physiology of athletics and maximal muscular work.

Shortly after the Copenhagen meeting, a unique opportunity presented itself to carry out studies of the heaviest type of work. Three young men, who were trained athletes and at the same time well versed in the experimental work in question, consented to work in the laboratories of Zoophysiology and of the Theory of Gymnastics in Copenhagen University, for two years as experimenters and as subjects, thereby ensuring an amount of cooperation which could scarcely have been attained in any other way.

The Commission then studied the Heat Regulation, the Respiratory Metabolism, the Influence of Diet on the Capacity for Work, the Blood Sugar during Work, the Lactic Acid in the Blood, the Respiration, the Oxygen Supply in Work of Maximum Intensity, Kidney Function and Muscular Work, Training and Fatigue.

The importance of these studies may be considered not only from the scientific results of the work, but also from the point of view that they afforded an excellent example of how research of this nature should be carried out in a purely scientific manner in order to obtain results of real value. Accordingly, the latest technical committee of the Health Organization on Physical Fitness is composed of physiologists specializing in this matter. From the United States we hope for the collaboration of Professor Dill of Harvard.

Work of the Malaria Commission.

The appointment of this Commission was due to the fact that, in consequence of the Great War, the epidemiological situation had become more serious, this deterioration taking the form of a recrudescence of malaria in the countries where that disease prevails. The Commission's function was to deal with the difficult problems with which the health administrations of those countries were confronted.

The causes of that recrudescence are well known: the disorganization of services; the suspension of anti-malarial measures; the economic and social upheavals due to the War; the overpopulation of certain areas in every continent under the worst possible housing conditions; and, in certain countries, migrations of sections of the population, malarial or otherwise, owing to famine. All these are factors which favor the outbreak of epidemics.

In view of the speed with which malaria resumed possession of countries where it had been entirely or nearly extinct, some doubt arose as to the value of the methods formerly employed against it. For many countries malaria was becoming a burning medical and social question which was too large for the national technical and financial resources and offered an excellent opportunity for international cooperation.

The Commission was composed of authoritative experts from various countries, and its function was to organize a complete program of work and international cooperation, taking principally the following forms:

Collection of epidemiological data as to the distribution and character of malaria, examination and selection of such information, and study of the results obtained by the various methods employed in anti-malarial work.

These investigations were conducted on the spot in most of the malarial countries, with the assistance of the Commission's members and experts. At the request of certain countries where malaria is severely endemic, the Commission's experts undertook epidemiological inquiries and

drew up programs of anti-malarial work adapted to local conditions.

The first report issued (C.H. 273) contained an exhaustive study of epidemiological factors in the malarial countries of Europe, and called attention to the urgent necessity of a campaign against malaria.

The Commission's second report (C. H. Malaria 73), dealing with the "principles and methods of anti-malarial measures" in the malarial countries of Europe, made use of the results of the investigations and inquiries carried out by members of the Commission with the cooperation of the health authorities and malariologists responsible for anti-malarial work, and laid down the principles adapted to European countries.

At the same time the Commission drew up, for the guidance of young malariologists an extensive program of research, the results of which were to serve as a basis for elaborating and improving anti-malarial methods in the field. Most of the malarial countries thus had the benefit of a wide consultation and of the experience of malariologists and other scientists in different countries.

The discussions and exchanges of views between the experts at the annual meetings of the Health Committee and the meetings of experts dealing with specific malarial questions represented effective international cooperation in the investigation of local problems and the choice of the best methods of conducting anti-malaria work.

The problem of treatment and the under-consumption of quinine, as well as new developments in chemotherapy, were matters of such concern to the malarial countries that they necessarily formed the subject of investigations and comparative research conducted under the auspices of the Malaria Commission.

At the same time, an inquiry carried out by the Secretariat of the Commission with the assistance of ninety-three health administrations revealed the prevalence of malaria, the approximate number of cases treated, the quantity of quinine required, and the possibilities of using it and apply-

ing treatment in relation to the anti-malarial organization of each country.

The report C.H. Malaria 185, which summarized the results of this far-reaching inquiry, contained at the same time the fullest data as to the world prevalence of malaria and the small number of cases treated. For instance, whereas sixty-eight malarial countries estimated the total quantity of quinine needed annually for the treatment of all their cases at 1,172 tons, and the Commission's Secretariat estimated it at 1,387 tons, the actual consumption of quinine in the whole world was only 600 tons.

The inquiry into requirements of quinine was only one part of the program of investigation in regard to treatment which the Commission had begun in 1924 by inquiring into the therapeutic value of the total alkaloids of cinchona. The researches were conducted with the cooperation of several malarial countries, and led to the establishment of a standard formula for a mixture of alkaloids entitled, "Totaquina", whose efficiency is about equal to that of quinine.

In view of the progress of chemotherapy and the possibilities opened up by the extensive experimental material collected for purposes of treatment, the Commission decided that comparative research should be undertaken under its auspices into the efficacy of synthetic drugs in the treatment of attacks, the prevention of relapses, and prophylaxis.

These studies were carried out simultaneously in 1935 and 1936 in Algiers (Professor Sergent), in Italy (Professor Bastianelli), in the Federated Malay States (Professor Fletcher and his collaborators), in Roumania (Professor Ciuca) and in Russia (U.S.S.R.) (Professor Serguieff), the object being to compare the efficiency of quinine and the synthetic drugs, atebrine and plasmoquine.

These large field experiments comprised in all 11,858 persons and have undoubtedly shown the great efficiency of the synthetic drugs, both in the treatment and the

prophylaxis of malaria. Compared with quinine by controls followed for over one year, we now possess a good estimate regarding the dosage, the indications, the administration and the efficiency of these drugs.

The third general report on the therapeutics of malaria (Quarterly Bulletin of the Health Organization, Vol. II, No. 2), based on controlled laboratory research, determined the field in which these substances could be employed and fixed experimental bases for the methods of titrating anti-malarial products.

The fourth report on treatment, which is now in preparation, will incorporate the results of the coordinated researches begun under the Commission's auspices in May, 1935.

There have also been coordinated investigations or reports by experts on other problems such as malaria in deltas, housing in relation to malaria, and the biology and geographical distribution of A. maculipennis.

The teaching of malariology was another important point on the Malaria Commission's program. Since 1926, international courses in malariology have been organized under the Commission's auspices with the aid of the European school of malariology and anti-malaria institutions in various countries.

During that period, eleven courses have been arranged in Europe and three at Singapore, with the cooperation of the health authorities and universities and the malariologists and experts in the different countries. Over 200 young malariologists, coming from more than fifty malarial countries, have now had opportunities of gaining some experience by working in different countries under the guidance of highly qualified experts.

Reference need only be made to the increasing number of international schools of malariology to prove once again the value of these international courses.

An important activity of the Malaria Commission has been the organization of collective study tours of malari-

ologists from all parts of the world in different countries. During more than ten years this coordination, these intimate relations, these exchanges of views and field studies by malariologists of different schools have produced results, which also would have required a much longer time to accomplish without the intervention of the Health Organization.

To sum up, the Commission has succeeded in:

Establishing methods of investigation, and so determining the extent and degree of gravity of malaria in the world.

Organizing the training of malariologists, who have in turn organized the anti-malaria services in their respective countries;

Laying down methods and principles of treatment and, as far as possible, standardizing methods of work;

Setting on foot an extensive program of coordinated research with the collaboration of experts and health authorities in various malarial countries. These researches have already yielded valuable results in the practical field.

Finally, the Commission has always been at the disposal of malarial countries for purposes of investigation and to assist them in organizing their malarial services.

I should like to emphasize the most valuable assistance the malaria work of the Health Organization has received from American experts: Dr. M. A. Barber, Dr. John A. Ferrell, Dr. L. L. Williams, Dr. Hacket and others.

A particularly tragic chapter was the accident in Syria, causing the sudden death of Dr. Samuel T. Darling. His memory is perpetuated in the Malaria Commission by the medal bearing his name which is awarded for outstanding work on malaria.

*Biological Standardization**

I now turn to another question which occupies the attention of the League: that of biological standardization.

* *R. Gautier*: The Health Organization and Biological Standardization. Quarterly Bulletin of the Health Organization of The League of Nations. Vol. IV.

By this term we mean the assay in relation to a single stable standard preparation of substances whose specific activity can only be estimated by comparative tests on laboratory animals.

The activity of the standard preparation is not always appraised by biological methods; for certain vitamins and hormones, for instance, it has already been found possible to take the active substance in chemically pure form as the standard, and to define this by its physical and chemical characteristics. If titration relative to such a standard is still effected by biological means, the reason is that preparations issued for therapeutic use do not usually contain the active substance in its pure form and are frequently mixtures. So long as these conditions prevail, any method of assay other than the biological will accordingly be unpracticable. As soon, however, as the action of such preparations can be measured by physical or chemical processes, it is clear that the biological method must be discarded.

To have a standard preparation is not enough; its action must also be measurable and expressible in terms of a unit of activity, the latter being defined as an arbitrarily selected volume or weight of the standard preparation. Experience, war-time experience in particular, has shown the difficulties in which physicians, public health services and manufacturers alike are involved through the existence of a variety of different units expressing the potency of one and the same drug.

The physician, confronted with a number of preparations from various sources must choose. Being anxious to make his treatment effective, he will select the most potent. How is he to recognize it, however, if the drugs have all been titrated on a different basis? How can he compare the therapeutic results he achieves with those reported by a foreign colleague if there is no common measure for substances used on different sides of a frontier? Finally, an even more serious consideration, many deaths could have been averted if the sera used during the war had been assayed in relation to a single standard. Doctors would

not have been betrayed by the unitage given on foreign ampoules into injecting quantities of serum which they had good reason to regard as sufficient, but which were in fact inadequate, since the assay had been effected in terms of a unit of lesser potency than that to which they were accustomed.

It is the duty of the public health departments responsible for the control of medical remedies to reject ruthlessly all preparations of inadequate therapeutic value, whether they be of local or of foreign origin. In this work, uniformity of titration will be of valuable assistance to them.

Manufacturers who do not supply the home market alone but intend to export have to take account of the conditions which each country lays down for the import of drugs. Now, if all countries adopted the same unit, matters would be greatly facilitated for the producing firms, who would be relieved of the trouble of adjusting their assays to the national units which subsist here and there.

The decision to have the question of biological standardization internationally studied was taken by the League of Nations Health Committee at its second session (Geneva, 1921). From that date onwards there have been held a series of conferences, which are listed below.

International Conference on the Standardization of Sera and Serological Tests, London, 1921.

International Conference on the Standardization of Sera and Serological Tests, Paris, 1922.

Technical Conference for the Study of Certain Methods of Biological Standardization, Edinburgh, 1923.

Conference for the Standardization of Anti-Dysentery Sera, Geneva, 1924.

International Conference for the Biological Standardization of Certain Drugs, Geneva, 1925.

Laboratory Conference on Blood Groups, Paris, 1930.

Conference for the Standardization of Vitamins, London, 1931.

Conference for the Standardization of Sex Hormones, London, 1932.

Second Conference for the Standardization of Vitamins, London, 1934.

Second Conference for the Standardization of Sex Hormones, London, 1935.

In 1924, the Health Committee decided, in order to secure continuity of work, to set up a Permanent Commission on Biological Standardization, which has so far held six sessions (Paris, 1924; Geneva, 1926; Frankfort, 1928; Geneva, 1930; London, 1931; Copenhagen, 1934). Up to 1934, it consisted only of six regular members and one associate member for the study of veterinary questions, but the Health Committee has now reorganized it on a wider basis.

Dr. McCoy, Director of the National Health Institute at Washington, has been a member of this Commission from its very beginning and I am very grateful for his most active and valuable collaboration. Dr. Voegtlin and Dr. Fitzgerald have also actively assisted as members of the Commission, nor should I like to leave out the name of Dr. Wadsworth, who has cooperated actively in the work of the Commission.

The Commission's method of work is based entirely on international cooperation. When the state of our knowledge concerning a given substance seems to warrant an attempt at standardization, the Commission entrusts the conduct of the preliminary work to a certain number of official and private laboratories having special experience of this branch of research, the experimental results being coordinated at the Copenhagen Institute in the case of serological questions and at the Hampstead Institute in other cases. As soon as it appears from the whole of the material thus collected that the solution of the problem is at hand, the experimenters concerned are convened in conference, and any remaining divergences are then easily smoothed out. The Commission thereupon makes recommendations, which are submitted to the Health Committee of the League of Nations for approval.

It is accordingly the business of the Biological Standardization Commission first to establish standard preparations

and second to select units to express their potency. This done, there remains to secure the acceptance of such standards and units for international use. Two different situations must be considered. In the first, either one or several standards and units are already in use for the substance to be standardized. In this case, some caution is required in order to avoid coming into conflict with the official regulations and alienating the medical profession, which may be accustomed to prescribe a given serum in doses of, say, 500 units, or insulin titrated in rabbit units. Some compromise must be arrived at which will satisfy both these requirements and will consist either in adopting an intermediate value between the extremes of the units in use or in determining a ratio of potency as between the international standard and a national standard which some country may be anxious to keep. In the second, the field is clear, and the Commission is in a position to propose the standard preparation and unit which seem to it best suited for international requirements.

From the establishment of a standard and the selection of the unit to the adoption of a standard method of assay was but a step; nevertheless, in most cases the Commission refused, on principle, to take it, reasoning that methods are liable to modification and improvement according to the indications furnished by research and that it is therefore the standard which should be kept immutable while the method may vary. Moreover, to attempt to impose some particular method, which will never be perfectly accurate since it is based on biological processes, is to restrict research. Now it is important to leave full freedom to research workers who endeavor to improve existing methods of assay or devise new ones. This is why, whenever several methods may be used, the Commission has merely mentioned them, though it has specified which one appeared to have given the best results.

There is another principle already current in serology, though it has not yet been generally recognized in other branches, by which the Commission has been guided throughout—namely, that the potency of a preparation

must not be judged in relation to a given biological action, but compared with that of a specified weight of a standard preparation. Indeed, any attempt to define a unit through the reaction induced in the animal would merely tend to perpetuate certain ideas which it is desired to eliminate, such as that of the "physiological" unit or "clinical" unit, the effect of which is difficult to appraise and which are liable to vary, not only from one animal species to another, but even in one of the same species.

So far, although the Commission's recommendations have been put forward merely by way of indication, they have been followed by the large majority of laboratories, a result that may be ascribed to the high scientific standing of its members and of the numerous experts of many countries which it has been its privilege to associate with its work.

Considering the long list of substances for which international standards had been established under its auspices, it appeared desirable in 1935 that its recommendations should receive official sanction. A number of countries had, it is true, already introduced the standards and units proposed into the recent editions of their pharmacopoeiae, acting upon the recommendation of the Second International Conference for the Standardization of the Formulae of Heroic Drugs (Brussels, 1925).

It was important, however, that these recommendations should receive official sanction and that the standard and units advocated should be introduced in the pharmacopoeiae of the various countries. This was achieved by an Inter-governmental Conference, which met in Geneva, 1935, and was attended by representatives of 24 countries, including the United States. This conference expressed the hope that the use of the international standards adopted by the Permanent Commission on Biological Standardization of the Health Organization should be made effective by the competent authorities of all countries. Furthermore, that these international standards should be distributed free of charge.

All this work on vitamins, hormones and drugs has been carried out under the auspices of Sir Henry Dale, Director of the National Institute for Medical Research in Hampstead, London, from whose institute these standards are distributed to all the medical centers in the world. On the other hand, the work on sera and tuberculin has been concentrated in the Copenhagen State Serum Institute, and these standards are distributed from this center.

The international standard preparations held and distributed on behalf of the Health Organization of the League are as follows:

A. By the Statens Serum Institute, Department of Biological Standards, Copenhagen S.

Standard	*When adopted*	*International unit in milligrammes*
Diphtheria antitoxin	1922	0.0628
Tetanus antitoxin	1928	0.1547
Anti-dysentery serum (Shiga)	1928	0.0500
Gas-gangrene antitoxin (*B. perfringens*)	1931	0.2660
Gas-gangrene antitoxin (*Vibrion septique*)	1934	0.2377
Gas-gangrene antitoxin (*B. oedematiens*)	1934	0.2681
Gas-gangrene antitoxin (*B. histolyticus*)	1935	0.3575
Anti-pneumococcus serum, Type I	1934	0.0886
Felton anti-pneumococcus serum, Type II	1934	0.0894
Staphylococcus antitoxin	1934	0.5000
Diphtheria antitoxin for the flocculation test	1935	
Old tuberculin	1931	

B. By the National Institute for Medical Research, Department of Biological Standards, Hampstead, London, N.W.3.

Standard	*Nature of the Standard Preparation*	*When adopted*	*International unit in milligrammes*
Insulin	Dry insulin hydrochloride	1925	0.125
Insulin	Dry insulin hydrochloride, pure	1935	0.045
Digitalis	Dry powdered leaves of *Digitalis purpurea*	1926	100.0
Sulpharsphenamine	Dry sample of sulpharsphenamine	1926	—

Standard	*Nature of the Standard Preparation*	*When adopted*	*International unit in milligrammes*
Pituitary (posterior lobe)	Dry powdered acetone-extracted posterior lobes of ox pituitaries	1927	0.5
Strophanthus	Pure crystalline ouabain	1928	——
Vitamin A	Carotene	1931	0.001
Vitamin A	Pure carotene	1934	0.0006
Vitamin B	Standard absorption product of vitamin B	1931	10.0
Vitamin C	Pure l-ascorbic acid	1934	0.05
Vitamin D	Standard solution of irradiated ergosterol	1931	1.0
Vitamin D	Calciferol	1934	0.000025
OEstrus-producing hormones	Hydroxy-ketonic form	1932	0.0001
OEstrus-producing hormones	Benzoate of the dihydroxy form	1935	0.0001
Male hormone	Pure crystalline androsterone	1935	1.0
Corpus luteum hormone	Pure crystalline progesterone	1935	0.1

This standardization work has the advantage that the clinician who uses a serum, can always be certain of its content of active substance. Furthermore, experience has shown that the fact that the producer is obliged to indicate the number of units on the label of the ampoules, has made it necessary for him to increase the strength of his product, whereas previously he could put on the market bad preparations as well as good ones. Thus many sera have effectively improved and increased in strength after the introduction of these international standards.

This coordinated work between institutes in different parts of the world has taught us many new facts about the toxins and sera examined. When for a number of years there has been found in an institute fairly good concordance in the titrations of, for example, tetanus antitoxin, the workers of this institute might be induced to draw the conclusion that this titration was a simple matter. But experiments in different institutes, even with the same test sera and the same test toxins have shown divergencies which could only be referred to qualitative differences in the sera and in the toxins, for example, different avidity, or pH.

Thus this team work has increased our knowledge very considerably and has stimulated progress not only in the knowledge of the bodies in question but also in the principles of biological assay which more and more is tending to become a special branch of serology and bacteriology. These comparative studies have also increasingly demonstrated the necessity of selected, even standardized, animal material for quantitative studies.

Nutrition

For the past twelve years the Health Organization has had under consideration the question of the best possible nutrition of the greatest possible number. These efforts were stimulated considerably by the 1935 assembly of the League of Nations, when the first delegate of Australia submitted a proposal which he described as "marrying agriculture and health": "Agriculture is in a bad way; the claim of health remains unsatisfied. Marry them, and you save the one and strengthen the other."

These questions have been taken up on broad lines by the International Labor Office, the International Institute of Agriculture, and the Health Organization of the League. I cannot enter into the details of this important work. Several commissions have been created, one technical under the chairmanship of Professor Mellanby with the very efficient collaboration of Professor E. V. McCollom of Baltimore and as members from the United States, Dr. Mary Schwartz Rose, Columbia University and Dr. Sebrell, National Institute of Hygiene, Washington. This Commission has already prepared reports setting out the energy, protein and fat requirements, the mineral and vitamin requirements, and problems recommended for further study. A list of these will probably give an idea of the scope of the present activities.

(a) Assessment of the nutritional state of children.

(b) Nutritive food requirements during the first year of life.

(c) Minimum vitamin and mineral requirements.

(d) Minimum fat requirements.

(e) The nutritive and supplementary values of the different protein containing foods, to determine to what extent and in what forms animal protein is necessary for growth and health.

(f) The relative nutritive value of different cereals according to the degree of milling.

(g) The extent to which the increasing consumption of sugar is detrimental to health.

(h) Influence of climate on food requirements.

(i) The extent to which diets in common use fall below the standards recommended in the report.

(j) The optimum amounts of milk required at different ages.

In June, 1936 the Commission also suggested a series of studies on milk, namely, in regard to the supplementary nutritional effects produced by the interaction of the dietary elements contained in milk on the one hand with those of cereals and potatoes on the other. Three types of research were suggested for this purpose, as follows:

(a) Metabolism laboratory observations on experimental animals.

(b) Institutional observations on the health, growth and development of children of all ages.

(c) Observations made upon large groups of children, for instance in elementary schools similar to those carried out in the United Kingdom and in the United States.

(d) Observations similar to those under (c) upon groups of pregnant and lactating women.*

Finally, a small group of experts, after a joint study in Great Britain, Sweden, Denmark, the Netherlands and Switzerland, are preparing a report on the nutritional,

* Quarterly Bulletin of the Health Organization. No. 3, Vol. V, p. 422.

hygienic, economic, social and general aspects of the milk problem.

These few indications will, I hope, give you an idea of the importance of the scientific work, connected with the nutrition work of the Health Organization.

Time has only allowed me to mention some of the items upon which active research work has been necessary to solve the problems confronting the Health Organization. Thus, it has not been within the scope of this paper to mention the work on housing, with the very efficient collaboration of Professor Winslow, nor to speak of the efforts made in the sanitary reorganization of countries such as Greece, and China.

Even friends of the League of Nations must admit that in the field of international political relations there have been some failures, and that confidence in the international agencies for the promotion of world peace has suffered some crude shocks.

But I feel justified in claiming that in the international collaboration in health work, the last sixteen years show real progress, for instance the protection against the great pestilential diseases, such as plague, cholera, yellow fever, smallpox, and typhus fever. Our position is much stronger than ever before, thanks to the cooperation between the Health Organization of the League of Nations in Geneva, with its Singapore Bureau, in close cooperation with the Office International d'Hygiène Publique in Paris, with the Pan-American Sanitary Bureau, and furthermore I should not fail to mention the Maritime and Sanitary Quarantine Board of Alexandria and finally the Austral-Pacific Bureau. The mere existence of all these organizations shows that the network of international relations is becoming thicker, stronger and better organized.

I should also like to point out the importance of the personal relations established by the collaboration of experts from different countries when they meet in the different commissions. It is very gratifying to notice how

willingly outstanding men of science have devoted their time and knowledge to the technical work of the Health Organization.

Let me give you a very recent example. During the present unhappy conditions in Spain, there is reason to fear that *typhus* fever may spread, and the question of vaccination against this disease has become urgent. As opinions about the best methods of vaccination differ very considerably, particularly the question of dead vaccination contra living, a consultation on this matter was convened in Geneva. In spite of the exceedingly short notice, all the leading experts responded to the Health Organization's invitation, among them Professor Hans Zinsser, of Harvard. This Commission had not finished its work when I left Geneva on September the 2nd, but I am sure that its report will be of service to Spain and to the world.

I cannot end my paper without expressing how much the Health Organization, from the beginning of our existence, is indebted to the very great assistance we have had from your country, the United States of America. The material help has facilitated ventures which could scarcely have been undertaken without this support, and a great number of your outstanding specialists have generously given their time and knowledge to this international collaboration. This fact contributes very considerably to the optimism with which I look to the future of this international collaboration for the improvement of preventive medicine in the whole world.

COUNT CAGLIOSTRO: AN EXCURSION INTO EIGHTEENTH CENTURY CHARLATANISM*

GEORGE H. LATHROPE

The word *charlatan* is taken direct from the French which in turn derives it from the Italian *ciarlatano,* substantive of the verb *ciarla,* meaning *to prattle.* A charlatan therefore is, in the original meaning, a prattler, while later is added the idea of one who boasts extravagantly; and finally we have this definition—"one who makes unwarranted or extravagant pretentions, as to the possession of knowledge or skill."** In this sense it has come to carry rather sinister or at least opprobrious implications to those of us who entertain pretentions to honesty. That such sinister meaning should always attend our employment of the term does not seem altogether fair, and in the sketchy portrayal of one of the world's great charlatans which I shall attempt this evening, I would ask you to withhold your more severe judgment, at any rate till the end.

In presenting this study alongside Doctor van Beuren's wholly delightful picture of Rabelais, I have no intention of suggesting that the two men, Rabelais and Cagliostro, are on anything like the same moral or intellectual level or that in any but an antithetic manner the one should suggest the other. Comparisons between them show some similarities, but greater contrasts. Cagliostro in his own field was as great a man as was Rabelais in his. Both possessed a rowdy humor. Both had a keen insight into the foibles of humanity and knew well how to play upon them. They contrast sharply, however, in their background, education and purpose in life. Rabelais, as Doctor van Beuren has pointed out, was of gentle birth, was trained by study of the humanities, knew the modern

* Read before a meeting of the Section of Historical and Cultural Medicine, January 13, 1937.

** Standard Dictionary.

languages as well as the classics. He studied theology, law, and medicine in the best universities of the day, and above all was a man of letters whose writings have influenced and delighted mankind from his day to our own. Cagliostro was of low birth, educated in the gutter and the dark and murky university of the underworld life of his time. Charlatan to the core, he was a mere pretender at linguistics; wrote nothing, because he could not write; left to posterity a reputation and record solely of trickery and deceit. The one satirized the weaknesses of humanity to its instruction and betterment; the other capitalized those weaknesses for his own selfish ends.

With other ideals in life, and with an education comparable to that which Rabelais enjoyed, Cagliostro might have rivalled Paracelsus. He was equally quick-witted and keen, equally noisy in discussion, fully as bombastic and overbearing. He might in some degree be likened to Falstaff. The gross makeup and gross appetites of the two were much alike, but comparison turns in favor of Sir John, for his roguery was of the childlike type, one might almost call it honest. Certainly it was not vicious or harmful. He cheated and robbed for the fun of the thing, and with a bawdy glee that makes him lovable, a quality claimed for Cagliostro by none of his biographers except his apologist, Trowbridge. One can only regret that our Count did not have some training in letters and leave us an authentic memoir or at the least some contemporary to play Boswell to his Johnson. Such a document might easily have gone down as one of the great biographies of all time. Certainly the raw material was there.

So much by way of preface.

Gilbert: "Monsieur, I am anxious to be a physician."

Rousseau: "A noble profession in which you may choose between real science, ever modest and self effacing, and quackery, ever noisy and empty. If you would become a physician, young man, study: if a quack, nothing but impudence and effrontery are necessary."

Memoirs of a Physician—Dumas.

As the healing art is the offspring of religion and intellectual curiosity, so is charlatanism the illegitimate child of religion and greed. Both medicine and quackery are so ancient and full grown when we first know them that no one may say which is the elder. Records of the one are as ancient as accounts of the other and time out of mind the bastard brother has fattened and waxed rich on the energy of the honest scientist whose discoveries he has emasculated and corrupted to his own gross misuse.

Yet there is always some offset and the record of quackery is not wholly black, or shall we say that medicine has from time to time had its eyes opened through the medium of charlatanism and thus seen great lights. Did not Hahnemann, more than any other, give impetus to a really scientific study of the materia medica and a more rational therapeusis? Did not Mother Eddy direct attention to our flagging interest in, and almost criminal negligence of, the neuropsychiatric field? What of osteopathy as a stimulus to modern orthopedics and physiotherapy? Has not Freud done a distinct service in prodding some, and all too few as yet, of our psychologists into seeking to place themselves on a firm basis of scientific knowledge?

The harm of quackery is infinite, but withal it carries grim humor and caustic mirth in its train. Tongue in cheek, it fleeces its victims and appeals for security in the very sense of ridicule which is heaped on its dupes—some innocent, others designing as itself.

The man around whom this particular discussion is developed may be regarded as pure quack, a scion of rascaldom, the Great Liar in "a World of the merest incoherent Lies and Delirium," as Carlisle in his own atrabilious way regards him. Or there is the alternative picture which Dumas portrays and which Trowbridge, of modern writers, seems to feel is more accurate, namely, that of a man who befriended the poor and who schemed with high purpose the overthrow of tyranny but who did not scorn to employ

what to modern eyes appear low and ignoble means, even rank deceit, if thereby he gain high ends. No doubt there is need for interpretation.

A glance at the times will perhaps illuminate his background and his stock in trade. His milieu was that of the French Revolution. Born in 1743, he died in 1795 at the age of fifty-two. His period of greatest activity or influence or notoriety, as you will, was the fifteen years from 1770 to 1785. The Seven Years' War between Frederick the Great and the allied nations had come to an end in 1763. The French and Indian Wars had stripped France of her American Colonies and the campaign in India had ended her colonial state in the Far East. The American struggle for freedom followed. Poland was being partitioned by Frederick and Maria Theresa of Austria. England, under the George II and III, was warily eyeing the confused political situation in Europe, ready to pounce if it might be to her advantage, apprehensive always lest the seething popular discontent of the continent should wash up on her own shores and infect her body politic. Underneath all, revolution was brewing in France. Louis XV, the "Well Beloved", with his series of mistresses from Pompadour to the du Barry, his unsuccessful colonial wars and his expensive victories on the continent, had impoverished, overtaxed, and alienated his subjects. Poverty and discontent filled France. Hunger stalked naked through its streets and lanes. Injustice and wrong doing were the order of the day. Mere existence was problematic. One existed as one could. The middle class was being slowly crushed out of existence between the despairing and desperate lower orders and the selfishness and self-deceiving extravagance of the aristocracy, who, adopting the motto, "eat, drink, and be merry", sought to hide from their fears of tomorrow in the license of today. Carlisle well terms it "a World of the merest incoherent Lies and Delirium". Small wonder that charlatanism was rife. Everyone had a cure to offer. Anyone's guess was as good as another's. The church was in exile. Ancient verities

had gone by the board. The magic words "Liberty, Equality, Fraternity", were rapidly replacing the old religion and Voltaire, with his religious and intellectual quackery was leading the dance. It was a veritable Walpurgisnacht. Naturally in such a maelstrom of political, economic, and intellectual confusion mountebanks and charlatans, soothsayers and wonderworkers became the order of the day. Sanity and rational thought were at low ebb. Men like the Comte de Saint Germain, Mesmer, Psalmanazar, and Casanova flourished. The wonder working tomb of the Abbe Francois de Paris became a Mecca for pilgrimage. Ghosts stalked through the night and portents filled the air.

Into these troublous times in 1743 there was born to one Pietro Balsamo, a shopkeeper of Palermo, a son destined to give color to a mean and squalid era, to lend some humor to tragedy, to be, as LeNotre describes him, "a precious person, whose mysterious figure dominated the last hours of the French monarchy." Giuseppe Balsamo was soon left fatherless, and the boy, endowed with insatiable greed for food and very little in his mother's lean pantry to satisfy it, developed to the full his propensity to lie, cheat, and steal. He soon became the terror of all the housewives. An uncle, stepping in to save the family name, placed him in school. Escapades and floggings followed with such frequency that there was probably little time for polite learning. Whether voluntarily or no, history does not say, Giuseppe retired from school after no long trial of its benefits and then, penitently it may be, expressed a desire for a monastic career. Through the offices of the same uncle he entered as a novice at the age of 13 the Convent of the Benfratelli at Cartegirone. Here he was put to work in the dispensary and became famulus to the convent apothecary. *Sic volvere Parcas.* To his mind, already stocked with the wiles and trickeries of the street gamins and gutter urchins of Palermo, was now added in the convent laboratory the tincture of pseudo-science which was to loom large in his future career. Such knowledge of drugs and the care of minor wounds and ailments as could be acquired in this

place, he no doubt absorbed in his year or two of apprenticeship; but more, we may be sure, of the seeds of alchemy, thaumaturgy, and the crookeder precepts of the so-called sciences of the day were implanted in the fertile soil of his mentality. Yet work, as ever, palled on him, and Giuseppe grew particularly restless under the strain of one of his duties, which was to read aloud from the lives of the martyrs while the brethren were having their evening meal. A rather torrid humor came to his aid here, for one night as he read, he substituted for the names of the saints, the names of some of the brethren present coupled with those of Palermo's well known women of loose morals. This broke up the supper, brought him a flogging, and resulted is his fleeing the Convent that night and returning to his mother's fireside, convinced that the ecclesiastical life held no further attractions for him.

The quaint habit called eating was still his main hobby, but eating meant work, and in his nature these two were antithetic. To lie and steal were easier but uncomfortably, every now and then one was caught. So he took up painting, which was dull and of little profit and boredom drove him to search for other and more congenial pursuits. He promoted an affair between his cousin and her lover, appropriating to himself the latter's gifts. He forged tickets to the theatres and for the benefit of a certain religious house, falsified a will. Even in this early day he adopted the cause of the poor and defended them against the minions of the law, his own brazen impudence or the intercession of relatives gaining his acquittal when he was haled into court.

The last act of Balsamo's boyhood follows. One Marano, a goldsmith of Palermo, was much given to superstition and magic, and Giuseppe began by playing upon his fears and credulity, then spoke guardedly of buried treasure and how to obtain it by virtue of his own powers of divination. The ground prepared, he agreed for 60 ounces of gold to find a hidden treasure for the eager dupe. On a dark night he led Marano to a lonely spot in the woods and after vari-

ous incantations, set the latter to digging, the 60 ounces of gold having been deposited in a safe place nearby. While Marano sweated and dug, the youth exorcised the evil spirits of the place and did all he could to rouse the fears and apprehensions of his victim and to make his sweat a truly cold one. Suddenly some accomplices appeared in the guise of demons and other fearsome shapes, set upon the poor goldsmith and administered a terrific beating. In the ensuing confusion the 60 ounces of gold, the only treasure in the vicinity, of course disappeared. Conspirators and victim fled. Following his night of terror some sense was restored to Marano and soon after he made loud complaint. Giuseppe found it expedient to decamp from Palermo with all possible expedition.

Here ends all that is authentic of the boyhood career of the young Balsamo. At various times in later life he spoke of Malta, Egypt, Arabia; of companionship with the sage Althotas from whom he claimed to have learned all the mysteries of alchemy; and of adoption by the Sherif of Mecca; but whithersoever his travels in the next few years, we may feel sure that his education in trickery and deceit went on apace, however circumscribed or wide these perigrinations may have been. Like Pistol the world was his oyster.

After a lapse of several years Giuseppe turned up in Rome where he shortly married Lorenza Feliciani, the beautiful daughter of a girdle maker. Angering his father-in-law by his unwillingness to settle down to an honest but humdrum life of trade, he left with his wife and soon appeared on the northbound road in the regalia of a Prussian colonel. Meagre accounts of their vicissitudes in the years that follow are obtained from police records in Spain, Portugal, Belgium, southern France, and northern Italy. Their means of livelihood would seem from these records to have been the selling of love potions and beautifiers, telling of fortunes, and any other form of cheating that appeared to fill the needs of the moment. Different aliases were assumed as fortune varied, and in a prosperous period

Balsamo even had the effrontery to return to his native Palermo as the Marchese Pellegrini, probably with the idea of splurging before his boyhood acquaintances. But to his ingenuous disgust the past, incontinent, rose up to plague him. Marano, who still mourned his 60 ounces of gold, was not to be brazened out by titles, and the little matter of the forged will had meantime been uncovered. This resulted in landing Balsamo behind the bars. But he or Lorenza had made an influential friend in the person of the son of the reigning prince or duke, and this personage so intimidated the authorities that Giuseppe was let go. Once free, he and his precious spouse sought healthier climes.

Another period of historical obscurity follows, but in 1772 he turned up in London and took up house painting. This we assume to have been interior decorating. On the side he dealt in love potions, restorers of lost vitality (cantharides was well known to the initiate of those days), charms, beautifiers, and whatever else promised easy return for least labor.

He soon quarreled with others of shady reputation. As London was the Mecca for quackery it is probable that the sturdy English artisans of this particular guild had little use for a foreign interloper and, through recourse to the law, persuaded the Balsamos to leave. This they did, disappearing again in the dark mazes of the continent. No record exists of what followed till they reappeared in London in 1776 as the Count Cagliostro and the Countess Seraphina. On this visit the pair were apparently wealthy. At any rate their stock-in-trade had expanded, for now spirit rapping, hypnotism, legerdemain and occultism of all sorts, were added to their bag of tricks. Prophecy even was attempted but after three accurate predictions of winning lottery numbers, Cagliostro declined further effort in this field, either because his secret source of information failed him, or because he regarded the risk as too great. Yet it had helped to establish his reputation. He worked medical cures also but for the poor only and without charge.

This was a curious phase of the man's modus operandi which later became more conspicuous.

Again, as a few years earlier, his fellow craftsmen in the occult and predatory sciences could not abide his success, and, through the offices of members of the legal profession of their own moral ilk, haled him before the tribunal of the Old Bailey. While it appears that no charges were sustained, they made things so uncomfortable, and the Fleet Street prison appeared so real that Cagliostro and the Countess Seraphina again, after a couple of years residence, shook the dust of London from their feet and sought other fields of harvest on the Continent.

During this second stay in London, however, an event highly important in the life of Cagliostro, took place. He and Lorenza joined the Freemasons. Now whether this step was taken primarily because the secrecy, mystery, blazonry and titles of Masonry appealed to him as a fertile field for exploitation, or because he had already secured the Cofton manuscript and the idea of Egyptian Masonry had begun to maturate, is not of importance. The fact is that it was during this second stay in London that he joined the brotherhood and proceeded shortly after to organize the Egyptian Rite of Masonry. Upon the death of a certain George Cofton, Cagliostro obtained his manuscript which dealt fully with the subject of Egyptian masonry. No one else knew of this so that Cagliostro had a perfectly free territory in which to erect a "system" of his own. He embodied in it his pet ideas of physical regeneration and transmutation of metals. He himself became at once, and was thereafter to his death, known as the Grand Cophtha of the new order, while Lorenza, or the Countess Seraphina, was its High Priestess. The restoration of lost youth and the power to make gold were notions in those days of high living with a definitely popular appeal, and the order flourished. Lodges were organized wherever he went, and the initiation, dues, and other perquisites became a source of unending and well nigh fabulous wealth.

The Count and Countess can now be followed through Saxony, eastern Germany and Poland, establishing Grand Lodges of the new order wherever they went, living in ease, even luxury, and travelling with a splendid retinue. In 1780 they reached St. Petersburg, where they established free clinics and lodges. Access to Catherine, however, was denied Cagliostro—an object which was apparently the chief reason for this trip. Through the wiles of the fair Seraphina he did succeed in gaining the influence of Potemkin, Catherine's then favorite; but at the moment when audience with the Empress seemed within his grasp, he was attacked by both the Prussian and Spanish ambassadors at the Court on the slight matter of the Prussian colonel's uniform, and certain pecadilloes which appeared to have made some impression on the police blotters of Spain.

The impression created by Cagliostro during this visit to St. Petersburg is set forth by Catherine the Great in a letter to Baron Grimm. Its strictures must be taken with a grain of salt for Catherine was never one to give herself away, and it is certainly a fact that in her literary efforts she wrote two dramas based on the Count's career. "I have read the memoir of Cagliostro which you have sent me and if I had not been already persuaded that he was a French charlatan his memoir would have convinced me. He is a rogue and blackguard and he ought to be hanged. M. Cagliostro arrived here at a very favorable moment for him, at a time when many lodges of Freemasons, infatuated with the principles of Swedenborg, desired with all their power to see spirits. They therefore ran to Cagliostro who said that he was in possession of all the secrets of Doctor Falk, intimate friend of Duke Richelieu, who had once sacrificed to him in the very midst of Vienna a black goat . . . M. Cagliostro then produced his marvelous secrets of healing. He pretended to draw quick-silver from a gouty foot and was caught in the act of pouring a teaspoonful of mercury into the water into which he was going to put the gouty member . . . Later on, racked by debts, he took refuge in the cellar of Monsieur Yelagin . . . where

he drank all the wine, champagne, and English beer that he could get . . . Monsieur Yelagin, annoyed by his brother rat in the cellar and by the thought of all the wine, and beer . . . gave him an old invalide to accompany him as far as Milan. This is the history of Cagliostro in which there is nothing exceptionally marvelous. I have never seen him near or far,—nor have I had any temptation to do so, for I do not love charlatans. I assure you that Rogerson thinks of Cagliostro as much or less than Noah's Ark. Prince Orlov, contrary to his custom, has not made much of Cagliostro. He makes fun of him as of those who from mere curiosity run to see him, and he has contributed but little to change into wine the water of the shameless partisans of this poor devil. But since the more stupid and ignorant the charlatans are, the more impression they create in the great cities, it is to be supposed that Cagliostro will be in his element in Paris."

So on to Courland, then Warsaw, where a trifling slip in the process of changing lead into gold before a distinguished audience led to denunciation by one of the witnesses, consequent discomfort, and pressing need for change of climate. They travelled in style; according to his Inquisition biographer, "with a considerable suite; couriers, lackeys, bodyguards, servants and domestics of all sorts, sumptuously dressed, gave an air of reality to the high birth he vaunted." By now, be it noted, he referred mysteriously to his high birth in Trebizond, where a princess, compromised through a love affair with a prince of the Island of Malta, had revealed him to the world somewhat after the manner of Moses' discovery by Pharaoh's daughter.

In 1783 he arrived at Strasbourg more flourishing than ever. In these intervening years he had come in contact with the Illuminés, an inner order of masonry whose chief concern was the overthrow of the Pope and crowned heads in general, beginning with the French monarch in particular. It seems quite probable that he became an important and well paid agent for this revolutionary organization

and endeavoured through it to strengthen his Egyptian lodges. Arrived in Strasbourg, whither his reputation as a healer and philanthropist had preceded him, he established free clinics and set about visiting the sick poor. He gave money freely where it was needed and refused all fees for his cures. He attached to himself here a licensed and well-trained physician who had run foul of his professional brethren and was for the time being outside the pale of good medical practice. The knowledge and skill of this man undoubtedly added greatly to the success of the clinic and enlarged the quota of cures.

He scorned clients of wealth, and when Cardinal de Rohan, Archbishop of Strasbourg, whose curiosity and cupidity were at once aroused, sent an invitation to Cagliostro to visit him, the latter replied to the messenger with consummate impudence,—"If Monseigneur the Cardinal is ill, let him come to me, I will cure him: if he is well, he has no need of me, I, none of him." Thus did he bait his hook, for the Cardinal seems to have been the fish he was after in this particular pond. In due course he netted and landed him.

Cardinal de Rohan was the most prominent scion of the powerful de Rohan family of Brittany. He was high in the councils of the Church, and in 1778 and 1779 had been ambassador at the court of Vienna. He was very wealthy, but extravagant and always in debt. Alchemy and the occult sciences had long attracted him and he had his own laboratory in his palace at Savergne where he dabbled after the secrets of rejuvenation, the Philosopher's Stone, and whatever other occult matters aroused his interest. He and the alchemist and occultist Cagliostro fitted like glove and hand and it was not long before a meeting was arranged when acquaintance, then friendship were established. Cagliostro took up quarters under the Cardinal's roof. Great lover that he was, the beautiful Seraphina probably played no small part in the enslavement of the prelate. Trowbridge will not admit that she was anything but honest and pure but Carlisle, as do most contemporary observers, takes a rather sinister view of her love affairs

with Potemkin and the Cardinal and regards her as the willing tool in her husband's hands, the lure for his victims. Just what gain Cagliostro secured from his friendship with de Rohan is not clear. Trowbridge says there is no record of his having money from him. That is as may be. It is probable that, as an agent of the Illuminés, Cagliostro gained prestige and influence through the acquaintanceship and was paving the way for furtherance of their plans. He kept up his free clinics, working wonderful cures, and from time to time made trips to Bordeaux, Lyons, and other cities where he established Grand Lodges and otherwise forwarded the interests of Egyptian Masonry. This was his great game and while the Illuminés undoubtedly regarded him as their agent, he unquestionably planned to make them subservient to himself, the Grand Cophtha of the Egyptian Rite. From these two sources at any rate sprang a sufficient fountain of wealth to make him now entirely independent of petty gain, and completely free to promote his reputation through his charitable ministrations to the poor and afflicted.

Le Notre tells us that the Count Cagliostro made his debut in Paris in 1781, and describes the house which he occupied, at the corner of the Rue Saint-Claude and the Boulevard Beaumarchais. It was still standing there in the early years of the present century when Le Notre visited it. From the description this is undoubtedly the house in which Dumas lays so many of the scenes in his *Memoirs of a Physician.* Apparently the Count's arrival in Strasbourg followed his appearance in Paris and he probably spent the next five years in residence both in Strasbourg and Paris.

Le Notre gives this interesting description of the man: "He was a rather awkward man, badly dressed in blue taffetas gallooned all over, and his powdered hair was arranged in long, drooping curls in the most ridiculously curious manner. He wore *chine* stockings with gold clocks, and velvet shoes with buckles gemmed with precious stones. There was an excess of diamonds on his fingers, on his shirt

frills, and on his watch chains; on his head was a charlatan's hat ornamented with white feathers; and eight months out of the year he wore a large blue fox-skin cloak, in addition to a fur hood like a *carapousse.* When children caught sight of him in his three-cornered fox-skin hat, it was a question as to who would get away first.

"His features were regular, his skin rosy, and his teeth superb. I shall not describe his physiognomy, because he had twelve or fifteen at his disposal. Never had such eyes as his been seen before."

Beugnot, who dined with Count Cagliostro at Madame de la Motte's, gives in his Memoirs the following description: "I only looked at him by stealth, and did not yet know what to think of him. His face, his head-dress, the man's whole appearance awed me in spite of myself. I waited to hear him speak. He spoke a most awful gibberish of Italian and French, and made many quotations, which were supposed to have been in Arabic, but which he did not trouble to translate. He alone spoke, and had time to touch on twenty subjects, because he developed them only as far as suited his convenience. He was constantly asking if he were understood, whereupon the company all around bowed to assure him of it. Upon entering on a subject he seemed transported and assumed a lofty attitude as regards both voice and gesture. But suddenly he would descend to the level of ordinary mortals to address most tender compliments and comical pretty speeches to our hostess. This manoeuvre lasted the whole of the meal, and I learnt nothing from the hero except that he had spoken of the heavens, the stars, the great Arcanum, Memphis, Hierophant, transcendental chemistry, giants, and huge animals; of a town which is ten times larger than Paris, in the interior of Africa, where he has correspondents; of our ignorance of all these beautiful things which he has on the tips of his fingers; and that he had interlaced his discourse with comically inspired compliments to Madame de la Motte, whom he called his *biche,* his gazelle, his swan, and his dove—thus borrowing his appelations from what

was most lovable in the animal kingdom. At the close of the dinner he deigned to put several questions to me one after the other, to all of which I replied with a most respectful confession of ignorance. I have since heard from Madame de la Motte that he received the most favorable impression of my person and my knowledge."

This carries us down to the affair of the Diamond Necklace. Though he was probably entirely innocent of any complicity therein, this marked the turning point in this precious rogue's career. Despite the very minor role he played in the drama and though he was practically an innocent victim, the story must be related because, justly or unjustly, it covered him with an opprobrium and unpleasant notoriety from which he never recovered. As a direct result of it he fell into the clutches of the Inquisition and died in a Papal prison.

A few of the *dramatis personae* deserve special notice.

Jeanne de Jacques-Rémy, self styled Comtesse de la Motte de Valois, was the daughter of a drunken poacher, who, though now fallen on evil days, was without doubt a left-handed descendent of Henri II and therefore entitled, the bar sinister being but a minor social impediment in those days, to the Valois name. Left an orphan in early childhood, as a street gamin of seven, she gained by her whining petitions the attention of the Marquise Boulainvilliers, who took Jeanne under her wing, reared her, gave her education and instruction in dressmaking, but turned her off on her runaway marriage to one Nicholas La Motte, a petty officer of dragoons. Madame La Motte-Valois then became a reality and soon her spouse assumed the title of "Count". Thereafter she was the Comtesse de la Motte de Valois. During an effort to reconcile herself with her former patroness she met the Cardinal Louis de Rohan and by dint of her not inconsiderable sex appeal combined with an easy virtue, her complaisant spouse soon gained a captaincy of dragoons and the pair established themselves in Paris. Efforts to gain access to the court were unavailing but in various ways in which gambling and pro-

curing probably played no small part, they maintained a position at least showy.

Enter now Louis de Rohan, Prince of Brittany, Cardinal Bishop of Strasbourg, Grand Almoner of France, Ambassador to the Court of Vienna and holder of a dozen other titles. In 1770, while in residence at Strasbourg, he had officially welcomed to France the sixteen year old Marie Antoinette on her journey to Versailles to marry the Dauphin. De Rohan fell in love with the beautiful Princess and from then on his great and consuming ambition was to be near her at Court and through her influence, attain to the Ministry of State. A few years later (1779) he became ambassador to the Viennese Court but there, alas, bitterly offended Maria Theresa who never forgave him and succeeded in imparting her hatred of the prelate to her daughter, Marie. So at Strasbourg he met his heart's desire, only later on to be baffled and sickened by the futility of its pursuit. Also at Strasbourg he met the arch conspirator, the *fons et origo* of the drama, the precious Comtesse Jeanne; and equally at Strasbourg, fateful bishopric, he fell into the toils of Count Cagliostro. Beautiful in person, but dumb, was the Cardinal—lover of good living, lover of display, lover of women, but disappointed in his great love and unconsoled by an assortment of mistresses; religious enough to be steeped in mysticism, ignorant to the point of being an easy prey for the charlatan and a gullible dupe for the scheming adventuress. His enforced remoteness from, and ignorance of events at Court, made him swallow with avidity the messages sent him by his protegé, Jeanne, who fed him with tales of all she was doing to reinstate him and gain him favor with the Queen. Soon this little liar begins to transmit purported word of mouth messages from the Queen and the Cardinal was thus made hungrily ready to swallow the bait whensoever it should be dangled near enough to his esurient lips.

Meantime two honest jewellers, the one from an Amsterdam ghetto, the other of like complexion from Saxony, had been preparing the property for the drama, namely, the

Diamond Necklace itself. Boehmer and Bassenger had met in the course of their trade in jewels, formed a partnership and been appointed Jewellers to the Court of Louis XV. The King was disposed to deny his then favorite little and under the acquisitive eye of the du Barry, they built a thriving business. Boehmer conceived the idea of a piece of jewelry for the King's mistress which should surpass anything the world had ever seen, sure that His Majesty would not deny her. A well nigh certain and honest penny might thus be turned. The assembling of the stones for the necklace then began and after some three years with an expenditure of 800,000 francs, the task was completed and the necklace ready to be offered for sale at the modest price of 1,600,000 francs. *Eheu fugaces!* that such best laid plans should untimely gang agley. Louis XV, that scarlet old sinner, just when the fruits of their labor hung temptingly before their eyes, was inconsiderate enough to contract smallpox; and in St. Denis, uncomfortably, very uncomfortably for Monsieurs Boehmer and Bassenger, "fell asleep in the Lord", May, 1774. (Abbé Georgel)

Of course the du Barry was through and with her, their market. Louis XVI was for a brief period attracted with the thought of presenting the necklace to the Queen, but Marie herself said France needed ships more than necklaces. The months and years went by and no purchaser appeared. Then a hint was dropped in the eager ear of Boehmer that the Cardinal Louis de Rohan might be interested in acquiring a dainty bit of jewelry for a High Personage. This hint, needless to say, came from the fair Jeanne de la Motte de Valois, who meantime, by forged notes, had aroused the poor dupe of a Cardinal to a high pitch of expectancy. She even went so far as to engineer a meeting between him and some replica of the Queen whom she had pulled out of a brothel in Paris. The darkness of the shrubbery of the Trianon gardens, the necessity for little but whispered conversations, the gifts of a book and a rose from the supposed Queen, combined to completely befuddle the silly Prelate.

After this Jeanne's work was easy. A contract was duly drawn up by Boehmer, January, 1785, calling for four payments of 400,000 francs each at six months intervals, the first to be made on August first of that year of grace, 1785. Jeanne pretended to take this contract to the Queen. Of course great secrecy was urged; the King was to know nothing of it. The contract came back with the words, "Bon, Marie Antoinette de France." "De France" was the slip in the forgery, for the Queen, had the simple Cardinal and the avid jewellers but known it, and as appeared at the trial, never signed her name that way. Eagerly swallowing the bait, the Cardinal signed the contract and Boehmer turned over the jewel—February 1, 1785. Jeanne was to superintend its delivery with great secrecy. She did deliver it, but to her husband. Both he and the necklace promptly vanished. Several months intervened before the first payment fell due and the worthy Count and Countess de la Motte meantime established themselves in some grandeur at Bar-sur-Aube. Then the bubble burst and into the Bastile went the Cardinal de Rohan, both La Mottes, their secretary who had done the forging of the letters, and the woman of the street who had impersonated the Queen. Cagliostro, who had come to Paris in order to be near his dupe, de Rohan, enjoyed too unsavory repute not to be implicated at least by inference, and was forced with his wife, Lorenza, to share with the rest the hospitality of the Bastile. This was really done on the accusation of the Valois who hoped by involving him to ease her own position. That he had even the smallest part in the conspiracy was never proven; and after eight or ten months alternately languishing behind the bars of the gloomy prison and facing his judicial inquisitors, he was acquitted of all complicity and set free. Whether guilty or innocent, and we may feel quite sure that guilty he might have been, had fair opportunity offered, the affair brought him much notoriety, for during the months of the trial he could not resist his hunger for the center of the stage and displayed his bombast and impudence to the full. Because the affair, justly or unjustly, marked the turning point in his career,

his involvement in the intrigue remains and must be noted in any account of him.

His acquittal was really a "not-guilty-but-don't-do-it-again" verdict, for next day a decree was issued by Louis XVI ordering him to leave Paris within 48 hours, and France within a week. He left and turned for the third time toward England. But the spoor of his last visit to London still smoked and his name was a stench in the nostrils of all honest Anglo-Saxon quackdom, nor was the public in general ready to view his presence with complaisance. The Diamond Necklace matter had been too well reported and the reputation of all connected with it had been badly smirched. Ridicule and persecution were the lot of the Cagliostros from the moment they set foot on English soil, and after trying in vain to stem the tide of hostility they left for the last time, their prestige gone, their glory departed.

One incident alone of this visit is worth relating, an incident which lends something of poetic humor to this last sordid chapter of Cagliostro's decline and fall. A certain editor, Morande by name, was one of the rogue's chief detractors and published repeated attacks on him. Cagliostro had on some occasion said that when he was in Arabia, he had learned that the natives having fed pigs on arsenic, turned them loose to be preyed on by the wild beasts of the vicinity. These promptly died of arsenic poisoning and thus the villagers were rid of the pest. Morande seized upon this story and held it and its author up to public scorn. With a flash of his old spirit and wit Cagliostro replied in another paper challenging Morande to partake of dinner with him on a date two months following, the conditions to be these: Morande might furnish and cook the dinner. One course was to be a young pig which Cagliostro should have in his keeping from the date of acceptance of the challenge to two hours before the meal when Morande might have it to prepare for the table. He offered a wager of 5,000 guineas that next morning Morande would be dead and himself, Cagliostro, alive. Morande declined

and suffered ridicule in consequence, but it was the swan song of the great charlatan.

On the continent the Count and Seraphina fared little better. There were a few friends here and there but even they feared the ridicule which was destroying the wonder-workers. Egyptian masonry had received a black eye. The Cagliostros were buffeted hither and yon and after weary months of futile effort to get under cover long enough to rally the Count's powers, they crept into Rome, where they hoped, it is supposed, to lose their identity in the byways of the great city. It was a literal placing of his head in the lion's jaws. He could not give up the effort to renew his masonic activities, but he was in Rome, the citadel of Catholicism, not in godless France. Before they had been in Rome six months the Inquisitors arrested both Cagliostros and with them took considerable documentary evidence—1789. The trial was of the usual Inquisitorial order. Lorenza is said to have broken down and confessed under "persuasion". Why Cagliostro escaped the death penalty is uncertain. He was sentenced to life imprisonment and sent to the fortress of San Leo where he died, perhaps in 1795. Lorenza ended her days in a convent.

No apology is offered for presenting a picture of the life and times of this arch mountebank and swindler, nor does it matter greatly that comparatively little of fact about him, but a great deal of fancy and fiction, has come down to us. We are concerned historically with the meaning of events rather than with the events themselves, and much meaning may be contained in the tradition that grows up around any character or event in history. Therefore, while separating wheat from chaff as carefully as may be, the meaning of each is to be considered.

An estimate of the man himself is difficult owing to the paucity of authenticated facts. Now the large bulk of such testimony is derived from the police blotters of the Europe of his day. These attest the widespread area over which his talents found expression, and in general exhibit the nefarious character of the activities in which those

talents revealed themselves. That the dour and peevish Scot, Carlisle, should discover here a golden opportunity for venting his neurotic spleen in a biographic sketch of the type he gives in his *Miscellanies,* is no wonder; nor that an emotional writer like Trowbridge, with his evident leanings toward occultism and mysticism, should seek to apotheosize his hero.

Carlisle writes the man down an unmitigated scoundrel and blackleg, unlettered, bombastic, and gross; Lorenza, his willing tool and able second. Trowbridge goes to the other extreme; admits he was a schemer but credits him with high motive. Somewhere between these two extreme estimates probably lies the true case. One thing seems clear and to the credit of the Count and Countess. However he used her, to whatever liaisons she leant herself in the course of their devious history, they stuck together through thick and thin; and it was only through the third degree methods of the Inquisition that her devotion to him finally gave way. No one can greatly blame her for that and it is even possible that her confession was the factor that saved him from the death penalty which traffic with masonry entailed in the Inquisition courts.

As to his practice of the Healing Art a few things are evident. He had no degree, no medical education as it was known in those days; but during his apprenticeship to the apothecary of the Benfratelli he did have ample opportunity to acquire a knowledge of drugs and their use, and probably of minor surgery; and with this as a grounding he was in position to acquire far more real knowledge as the years went by. He was certainly not lacking in intelligence and these opportunities could scarcely have been neglected, so that it is a safe assumption that his therapeutics were those in general use by the practitioners of the day. Moreover, to this legitimate, let us say, therapeutic resource he added later on the subtle and shady practices of hypnotism and occultism, caring not *how* he worked his cures, only that he worked them. As he went on, the conscious and successful effort to deceive must have

turned into a profound conviction of his own powers and thus his abilities in psychotherapeusis became greatly enhanced. Another fact of interest is that he took no money for his cures. He established clinics wherever he went, sought out the poor and treated them free,—even gave them food and money. To Trowbridge this evinces a true eleemosynary disposition and a love of his fellow men, but it may have sprung from design and good advertising sense. He was not after small game in those days. He sought a following in order to aggrandize his Egyptian Masonry which apparently paid him enormous dividends. What better method of securing the following he wanted for this semi-religious, semi-political order, than in imitating Jesus of Nazareth?

The age was one in which the old foundations were crumbling. Paracelsus had already made a bitter and devastating attack on the medical practice of the day and aside from the fact that Cagliostro did not belong in the regular ranks, his practice was probably no worse than that of the regulars and more successful in fact from his very deep conviction of his own psychic powers. Voltaire and Rousseau had undermined the spiritual and religious thought of the day. France, overlong under dominance of feudalism, was beginning to be shaken by the rumblings of the coming revolution and no one felt any security in former beliefs, religious, political, or philosophic. Loose thinking, loose living, unmorality and chicanery were rife and Cagliostro, the charlatan, was merely a sign of the times. That he moved in such high company in his later years was due to the fact that he had talents and organizing ability which were useful to one of the great revolutionary societies of the day. That, while serving them, he exploited the freemasons for his own ends was only to be expected from the character of the man and they probably were well enough aware of the risks run in employing him. He never betrayed them. Whether in the end they betrayed him is a question. They certainly did little to keep him out of the hands of the Inquisition. When all is told there is little

record of real harm done by him and no small record of good, whatever the motivation for its doing. Apart from the free clinics, he assuredly added a touch of humor, grim perhaps, but humor none the less, to an age otherwise drab and sordid.

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Abstracts of Papers Presented Before the Section of Obstetrics and Gynecology, May 25, 1937

1. SKIN HYPERESTHESIA IN ACUTE SALPINGITIS*

JOHN S. LABATE

Fifty-three cases of acute salpingitis were examined for skin hyperesthesia. This was done by grasping the skin and subcutaneous tissues between the thumb and forefinger and then pulling straight out simultaneously exerting a vigorous twist.

Skin hyperesthesia occurred either over a wide area involving one or both lower quadrants or, as happened more frequently, over smaller areas involving only portions of the lower abdomen. Maximal areas of skin hyperesthesia can always be found. This may occur at the spino-umbilical point (50 per cent) or at Ligat's point (12.7 per cent). Frequently (16.7 per cent) skin tenderness is found to diffuse downward from the spino-umbilical point in the form of a band. The position of the spino-umbilical point is described as an arbitrary point 2.5 cm. lateral to the umbilicus on a line drawn from the anterior superior spine of the ilium to the umbilicus.

Skin hyperesthesia occurring over the above maximal areas is characteristic of acute salpingitis. The absence of skin hyperesthesia has no negative value. The presence or absence of skin hyperesthesia cannot be used to determine the severity of the infection. It may be quite fleeting in character or persistently absent in the face of the most severe infection of the tubes.

Of ten cases of mild subacute or chronic salpingitis 60 per cent showed positive skin hyperesthesia. All cases of tubo-ovarian abscess failed to develop skin tenderness.

Ten cases of ectopic tubal gestation failed to show the presence of any skin hyperesthesia. The presence of skin tenderness favors the diagnosis of salpingitis.

* From the Obstetrical and Gynecological service of Bellevue Hospital.

2. OBSERVATIONS ON THE RELATIVE EFFICIENCY OF TWO TYPES OF ERGOT PREPARATIONS IN THE CONTROL OF POSTPARTUM BLEEDING

From the Clinic of the

MARGARET HAGUE MATERNITY HOSPITAL Jersey City

ROGER C. TER KUILE

Postpartum bleeding often is an alarming incident of the third stage of labor.

For its control oxytocic agents are used, of which the principal sources are the pituitary glands of animals, and ergot.

Ergot has heretofore been available in Galenical forms and as certain alkaloidal salts derived from it. Ergonovine is a relatively new alkaloidal derivative.

In order to rate its efficiency as compared to previously available alkaloidal derivatives, approximately five hundred clinic and private patients were studied relative to the time-response of the uterus to the two types of ergot derivative, together with the influence on this response of the type of delivery and of the anesthetic used.

As a result of this study the following conclusions were arrived at:

1. That ergonovine was more efficient in preventing and controlling abnormal bleeding than ergotamine tartrate.

2. That ether anesthesia predisposes most to postpartum bleeding and nitrous oxide least, of the small group of anesthetic agents studied.

3. That the type of delivery had no essential effect on the incidence of postpartum bleeding.

4. That the occurrence of abnormal postpartum bleeding appears to predispose to sapremic infection of the uterus.

5. That none of the corollary factors concerned in this study modifies the first conclusion as to the clinical superiority of ergonovine preparations over older forms of ergot derivatives.

3. AN X-RAY STUDY OF GASTRIC FUNCTION DURING LABOR*

A. Hirsheimer, Derrick January, and Joseph Diversa

It is a common observation that vomiting occurs more often in obstetrical than in surgical anesthesia, and that frequently the vomitus consists of food that has been eaten many hours earlier. This is both disagreeable and hazardous, since aspiration of the vomitus has caused serious pulmonary complications.

No studies of gastric emptying during labor were found in the obstetrical literature.

Barium meals were given to ten primiparae in labor and roentgenograms taken at hourly intervals for three or four hours. The emptying time was three hours or less in all but two cases. In one there was definite delay at the third hour. Another patient, of whom it was not possible to get pictures after the first hour, vomited the entire test meal after delivery five hours later. There was no evidence of mechanical interference with evacuation in any of the cases.

Although the evidence is incomplete, the authors believe that there is a definite functional disturbance of gastric activity in some individuals during labor, and recommend great caution in the administration of food and oral fluids to all patients during labor.

* From The Methodist Episcopal Hospital, Brooklyn, New York.

4. ELDERLY PRIMIPARAE

CLOYCE R. TEW AND K. KUDER

An analysis of 240 elderly primiparae, giving an incidence of 2.01 per cent in 11,919 deliveries during a four and one-half year period at the Lying-In Hospital, N. Y. City, showed the following significant conclusions:

1. The oldest patient delivered was 46 years of age.
2. The funnel pelvis was more frequently encountered than any other pelvic contracture.
3. The occurrence of toxaemias in the elderly primiparae was 22.5 per cent as against 8.04 per cent in the clinic population.
4. Tuberculosis showed a percentage three times as high as the controls group.
5. Myomata uteri were twice as frequent as in the controls.
6. Pyelitis of pregnancy was twice as frequent.
7. That 22 per cent of elderly primiparae had undergone previous abdominal operations prior to pregnancy; some of which definitely influenced the course of the labor they exhibited.
8. Persistent occiput posterior position and breech presentations occurred in 11.25 per cent and 4.1 per cent.
9. That 53.3 per cent of elderly primiparae came to term with the head unengaged.
10. Labor, in its entirety, and fractionally in different stages, was prolonged in elderly primiparae significantly.
11. Cesarean section was performed in 12.9 per cent of the cases which figure is four times that of the control series.
12. The incidence of forcep deliveries was twice that of the clinic population.
13. The ratio of male to female infants born was 122:100.
14. The incidence of post-partum hemorrhage was greater in the group of elderly primiparae.
15. Infantile mortality in the elderly primiparae was 10.74 per cent compared to 4.1 per cent in the clinic control.
16. Maternal mortality was 1.25 per cent compared to the clinic control of 0.30 per cent.
17. Puerperal infection and morbidity were notably higher than in the control series.

5. THE SIGNIFICANCE OF CLOSTRIDIUM WELCHII IN THE GENITAL TRACT OF PREGNANT AND PUERPERAL WOMEN*

STANLEY M. BYSSHE

A routine series of 547 antepartum, intrapartum and postpartum women were studied; vaginal or cervical anaerobic cultures were taken

* From the clinic of Sloane Hospital for Women.

from all patients. The incidence of positive Cl. welchii cultures was 4.5 per cent. Of the positive cultures, 80 per cent were found in patients in labor or in the early puerperium, so that the presence of Cl. welchii may indicate nothing more than contamination of the vagina from the perineum and anus.

Five of the total twenty-five positive cases developed a true infection by the organism. In four of these, the infection was localized in the genital tract, and in only one did the infection become generalized.

In the five infected patients three had living infants. In these a focus of traumatized tissue was present in all; there being two abortions, one cesarean section, and two deliveries with forceps and episiotomy. The four patients showing only puerperal endometritis had none of the clinical stigmata of Cl. welchii sepsis. These were treated with local zinc peroxide and antitoxin and all made uneventful recoveries. The fifth infected patient developed a positive blood stream infection as well, and died before specific therapy could be instituted.

6. CLINICAL STUDY OF ACID ALURATE USED AS AN ANALGESIC IN 101 CASES AT WOMAN'S HOSPITAL*

WILLIAM A. GRAHAM AND MARY DEWITT PETTIT

Acid Alurate (Allyl-isopropyl Barbituric Acid) is soluble in ether oil mixture, and is suitable for rectal medication in obstetrical cases. A study of 101 cases taken from the Ward Obstetrical Service of Dr. Ralph A. Hurd, at the Woman's Hospital, was made over a period of five months. The drug was evaluated as to completeness of amnesia and analgesia, degree of restlessness and difficulty in control of patient, toxicity to mother and child, effect on the duration of labor and on the third stage of labor.

The technique of administration, the dosage, the time of instillation of the Alurate are described. An analysis of the patients was made in regard to their types of pelves, the method of delivery, length of labor period.

The drug produced an excellent amnesia in 67 per cent, a partial amnesia in 22 per cent, with 11 per cent failure. The analgesia was excellent in 74 per cent, partial in 15 per cent, with failure in 11 per cent of the cases. As far as could be determined there were no serious toxic reactions in either mother or child; 10 per cent of the children were partially narcotized at birth.

The duration of labor was definitely increased in our series as compared with the accepted textbook figures. The drug produced no increase in blood loss incident to delivery.

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* From the clinic of the Woman's Hospital.

A SELECTION OF RECENT ACCESSIONS

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DEATH OF FELLOW

THORNLEY, JOSIAH PAYNE, 134 West 70 Street, New York City; born Tooresdale, Pa., July 17, 1867; died in New York City, July 21, 1937; graduated in medicine from the University of Virginia in 1887 and Columbia University, College of Physicians and Surgeons in 1896; elected a Fellow of the Academy April 6, 1922.

Dr. Thornley was a member of the American Medical Association, Consulting Dermatologist and Syphilologist to the U. S. Marine Hospital No. 70, and Director of Dermatology and Syphilis at the Gouverneur Hospital.

OFFICERS OF SECTIONS, 1937-1938

Dermatology and Syphilology, 1st Tuesday

Chairman	*Secretary*
Louis Chargin	Harry C. Saunders
1 West 85 Street	159 West 87 Street

Surgery, 1st Friday

Roderick V. Grace	Frank L. Meleney
100 East 66 Street	180 Ft. Washington Avenue

Neurology and Psychiatry, 2nd Tuesday

Irving Pardee	Morris Grossman
160 East 64 Street	66 West 87 Street

Historical and Cultural Medicine, 2nd Wed. of Nov., Jan., Mar. and May

Reginald Burbank	Howard R. Craig
6 East 78 Street	175 East 79 Street

Pediatrics, 2nd Thursday

Samuel Z. Levine	Philip M. Stimson
N. Y. Hospital, 525 East 68 Street	25 Claremont Avenue

Ophthalmology, 3rd Monday

James W. White	Rudolph Aebli
15 Park Avenue	30 East 40 Street

Medicine, 3rd Tuesday

Joseph Hajek	Thomas T. Mackie
555 Park Avenue	16 East 90 Street

Genito-Urinary Surgery, 3rd Wednesday

Fedor L. Senger	John A. Taylor
142 Joralemon Street *Brooklyn*	2 East 54 Street

Otolaryngology, 3rd Wednesday

Clarence H. Smith	James W. Babcock
140 East 54 Street	20 East 53 Street

Orthopedic Surgery, 3rd Friday

Earl E. VanDerwerker	Joseph B. L'Episcopo
333 East 43 Street	177 Lafayette Avenue, Brooklyn

Obstetrics and Gynecology, 4th Tuesday

Thomas E. Lavell	Edward H. Dennen
1 East 63 Street	133 East 80 Street

AFFILIATED SOCIETIES

New York Roentgen Society, (Affiliated) (3rd Monday)

Leopold Jaches, *Chairman*	R. W. Lewis, *Secretary*
100 East 94 Street	115 East 61 Street

Society for Experimental Biology and Medicine,
(Auspices of Academy) (3rd Wed.)

Philip E. Smith, *President*	A. J. Goldforb, *Secretary*
630 West 168 Street	City College, Convent Avenue and 139 Street

Harvey Society (Affiliated) (Gives 2nd Acad. Stated Meetings, 3rd Thurs.)

Eugene L. Opie, *President*	McKeen Cattell, *Secretary*
Cornell Med. Col., 1300 York Avenue	Cornell Med. Col., 1300 York Avenue

New York Pathological Society, (Affiliated) (4th Thurs.)

N. Chandler Foot, *President*	Milton Helpern, *Secretary*
N. Y. Hospital, 525 East 68 Street	400 East 29 Street

TENTH ANNUAL GRADUATE FORTNIGHT
of The New York Academy of Medicine

NOVEMBER 1 TO 12, 1937

"MEDICAL AND SURGICAL DISORDERS OF THE URINARY TRACT"

The subject will include Bright's disease, arterial hypertension, and infections, tumors, calculi and obstructions of the urinary tract; and will exclude venereal disease, diseases of the genitalia, and gynecology.

THE PROGRAM COMPRISES

Morning and Afternoon Clinics, Evening Meetings, and a Scientific Exhibit

I. HOSPITAL CLINICS

Twenty-three important hospitals of the city will present coordinated morning and afternoon clinics and clinical demonstrations. These will be conducted by leading clinicians, customarily from the staff of the hospital at which the presentation is made, although distinguished clinicians from other staffs may be invited to participate. These carefully prepared programs in past years enjoyed well-merited appreciation. The clinics this year will prove, it is believed, unusually valuable and interesting.

The hospitals which will cooperate in presenting clinical programs are:

Babies	Lincoln	Mount Sinai	Roosevelt
Bellevue	Manhattan Eye, Ear and Throat	New York Polyclinic	St. Luke's
Beth Israel	Memorial	Post-Graduate	St. Vincent's
French	Montefiore	Presbyterian	Sea View
Harlem	Morrisania	Rockefeller Institute	Sloan
Lenox Hill			Squier Urological Clinic
			Woman's

II. EVENING SESSIONS

At the evening meetings to be held at the Academy, prominent clinicians who are recognized authorities in their special lines of work will discuss various aspects of the general subject. The subjects and speakers will be:

Physiology of the kidney.....Alfred N. Richards
Tests for kidney function.....Donald D. Van Slyke
Edema and its treatment.....Dana Atchley
Uremia and pathology of kidney function.....Arthur M. Fishberg
Pathology of vascular disease.....Milton C. Winternitz
The pathology of nephritis.....George Baehr
Clinical aspects of nephritis.....Robert F. Loeb
Nature of hypertension.....Irvine H. Page
Clinical aspects of hypertension, including malignant hypertension.....Herman O. Mosenthal
Evaluation of the surgical treatment of hypertension.....George J. Heuer
The nephroses.....Albert A. Epstein
Vascular and renal complications of pregnancy.....W. W. Herrick
The psychological factor in hypertension.....Karl A. Menninger
Pathogenesis and treatment of renal infections.....William F. Braasch
Renal and perirenal infections.....Hugh Cabot
Renal tuberculosis.....John R. Caulk
Calculus disease. The formation of stones.....Linwood D. Keyser
Clinical aspects of calculus disease.....Henry G. Bugbee
Bright's disease in children.....John D. Lyttle
Common urologic diseases in children.....Meredith F. Campbell
Radiotherapy of tumors of the urinary tract.....Benjamin S. Barringer
Tumors of the kidney and ureter.....Archie L. Dean, Jr.
Tumors of the urinary bladder.....Edwin Beer
Pathologic physiology of bladder neck obstructions.....William E. Lower
Transurethral resection of bladder neck obstructions.....Joseph F. McCarthy
Surgical treatment of obstructions at the neck of the bladder...Hugh H. Young
Hydronephosis and Pyonephosis.....William C. Quimby

III. SCIENTIFIC EXHIBIT

A comprehensive exhibit of books, pathological and research material will be assembled to include diagnosis and treatment, clinical and laboratory diagnostic methods, x-rays, surgical and medical treatment, action of drugs and other therapeutic measures. Demonstrations will be held at regular intervals.

A COMPLETE PROGRAM AND REGISTRATION BLANK WILL BE MAILED ON REQUEST